REMARKS/ARGUMENTS

This paper is in response to the Notice of non-compliance of the Response filed on 03/30/10 to the non-final office action. This notice was mailed on June 1, 2010, with a one-month time for reply without extension. Applicants request an extension of time for five months.

Applicants do not include in this response to the Notice of non-compliant amendment the amended claims or drawings as advised by the Notice. Applicants have amended the claims 1-16 in the Response filed on 03/30/10. No new matter is believed to be added by these amendments. Applicants have corrected Figures 1A and 1B to correspond with SEQ ID NOs: 1,2, 3, 11, and 23 as shown in the Sequence Listing filed June 16, 2008. A marked up copy and clean copy of the drawings were included in the previously filed Response.

Applicants have corrected SEQ ID NOS: 2-4 in paragraph 11 to correspond to the Sequence Listing filed on June 16, 2008.

The amino acid sequences in paragraphs [013], [049], [056], [057], [058], and [088] the consensus sequence in Table 1 and the sequences in claims 5, 6, 10, 13 and 14 were added as SEQ ID NOS: 25 to 30 in the accompanying substitute Sequence Listing filed along with this response. A paper copy of this Sequence Listing is also attached and a request that this Sequence Listing be entered into the Specification. Applicants hereby certify that the computer readable version and the paper copy of the Sequence Listing submitted herein are the same and include no new matter.

Applicants previously submitted a black & white version of Figures 3 and 6.. An amendment to the specification at paragraphs [024], [026] and [027] which state that the drawings are color photographs has been amended to remove the word "color". Colored drawings were provided to the Office because prior to the Electronic Filing System set up by the

Office, Applicants noted that black & white copies made by the Office of colored drawings often were reproduced with much better resolution and quality. Applicants have also bolded the labels A-F in Figures 3 and 4 as the Office has noted that they were illegible in the submitted drawings.

SEQ ID NO:25 in the Sequence Listing was amended to show that the amino acid at position 6 is a Thr (T) rather than a Tyr(Y) residue as shown in Table 1.The variant at position 9 was also amended to reflect that an Asn is possible at position 9 as shown in Table 1. Furthermore at position 16, the Table and the Sequence Listing were amended to remove the last three residues "Phe-Tyr-Leu" or "PYL" which were inadvertently added to SEQ ID NOS: 2-4. The residues are not present in the figures, and furthermore the numbering in the description in paragraph [0011] for these three peptides does not include the PYL residues. For example, the description in paragraph [0011] for SEQ ID NO:2 is "*Zea mays* SuSy1 367-381." Residues 367-381 provide a 15mer peptide, which corresponds to ENGILRKWISRFDVW. These amendments are corrections to the sequence listing and are supported by the specification as filed and should not be viewed as adding new matter. Application respectfully request the entry of these Amendments.

Table 1 on page 11 is further amended to add hyphens between the listed residue numbers in the position column for SEQ ID NOS: 5, 7 and 8.

SEQ ID NO: 29 in the Sequence Listing filed on March 30, 2010 stated that the amino acid at position 12 can be Lys, Arg, or His. The Office Action noted on page 2 that the specification at paragraph [0056] stated that position 12 in SEQ ID NO:29 is a Val or other conservative substition. Applicants have amended the Sequence Listing for SEQ ID NO:29 to provide that the amino acid at position 12 to correspond to paragraph [0056].

The Office Action noted that SEQ ID NO:18 in Figure 1A include three superscript "^{N}"s. These were intended to represent the amine bonds present in the peptides and not intended to represent other amino acids such as asparagine. Please see the peptide sequence of SEQ ID NO:18 as shown in the listing of peptides in paragraph [0011].

Applicants thank the Office for pointing out that the amendment instructions previously filed did not correctly identify the location of the paragraphs to amended. Applicants believe this set of amendment instructions does correctly identify the correct paragraphs for amendment.

Applicants have addressed the objections to the specification on page 3 of the Office Action in the amendments to the specification and briefly summarize here.

Applicants have provided the full paragraph [057] (previously labeled as [055]) for amendment. Applicants have also provided a corrected amendment of paragraph [061] (previously labeled as [059]). Applicants have removed the underline in the header for column 3 in Table 3, to clarify the underlined amendment to Table 3.

Applicants have amended paragraph [013] to provide that the SEQ ID NO: is properly identified as SEQ ID NO:29 and so identified in the Sequence Listing.

Applicants have amended paragraph [088] to provide that the SEQ ID NO: is properly identified as SEQ ID NO:30 and so identified in the Sequence Listing.

The present amendment provides an amendment to paragraph [096] to delete the reference to color photographs.

Applicants have amended paragraph [0114] to correctly reference Figure 6B, not "Fig. 68B."

The Office Action required that claim 15 be rewritten as it was deemed an improper claim depending from claim 14. Applicants respectfully note that claim 15 depends from claim 13 not claim 14 thus the objection to claim 15 is deemed inapplicable and moot.

Claim 4 was objected to by the Office Action as an improper incorporation by reference. With the sole purpose of furthering Applicants' patent goals, claim 4 is amended, thus rendering the objection to the claim moot.

Claims 1-10 were rejected under 35 U.S.C 102(a) and/or (e) as anticipated by Liu et al in U.S. Patent Application Publication 2003/0034888, which teaches a polypeptide identified as SEQ ID NO:54668. The Office Action alleges that "[r]esidues 19-34 of Liu's polypeptide correspond to Applicants' SEQ ID NO:12, and residues 26-31 correspond to Applicants' SQ ID NO:22. In view of the similarity in amino acid sequence between Liu et al's polypeptide and Applicants' claimed peptide, inherently Liu et al's polypeptide will bundle actin and inhibit actin depolymerization to the same extent claimed by Applicants. " Office Action page 10.

Applicants respectfully disagree that the disclosed polypeptide by Liu et al would inherently bundle actin and inhibit actin depolymerization. The *Zea mays* and *Glycine max* sucrose synthase proteins may have these subsequences of SEQ ID NO: 22 and 12 embedded in their native sequence, however, these proteins have not been shown to have the same actin bundling activity of the claimed polypeptides. See H. Winter, et al., *FEBS Letters*, Volume 430, Issue 3, 3 July 1998, pages 205-208, by two of the named inventors, which was also submitted in the IDS of record and considered by the Examiner, which states that. "some of the 'soluble' SuSy may actually be bound to the actin cytoskeleton in vivo. The significance of the association of SuSy with actin remains to be elucidated. By analogy with animal systems, where association of enzymes with microtubules and actin filaments is well documented [12, 14, 15], binding could

function to regulate activity or provide a scaffold for juxtaposition of enzymes from the same pathway." Also these native sucrose synthase proteins often require phosphorylation and are regulated by the sucrose concentration for F-actin binding activity.

Thus, just as the *Zea Mays* native sucrose synthase proteins have not been shown to cause F-actin bundling even though it associates with F-actin, one having skill in the art would not conclude that the Liu polypeptide would cause actin bundling and inhibits actin depolymerization as claimed by Applicant. The Liu polypeptide is 97 residues long and the subsequences of SEQ ID NOS:12 and 22, which are 6 and 16 residues in length respectively, are set in the center of the polypeptide. The F-actin bundling activity, if any, of this polypeptide cannot be determined without actual experimentation. Thus, Applicants argue that the Liu polypeptide would not inherently bundle actin and inhibit actin depolymerization as claimed by Applicants in claim 1..

Solely in furtherance of Applicants' patent goals, Applicants have amended the claims to recite that the claimed polypeptides "causes 50% bundled actin and inhibits actin depolymerization when polymerized in vitro with actin at a molar ratio of at least 10 to 1" and in some dependent claims the limitation of "a molar ratio of at least 100 to 1" was added.

Applicants also submit that the claims are not obvious over the prior art because Liu et al does not teach or suggest that the specific residues as isolated by the Applicants would be responsible for bundling actin and inhibiting actin depolymerization. Therefore, Liu et al.does not teach or suggest the specific peptide and activity of Applicants claimed peptides and said properties cannot be said to be inherent, Applicants respectfully request that the rejection be withdrawn and the claims as amended be allowed.